

ORGDP HEALTH PHYSICS PROGRAM  
FOR OCTOBER 1977

Compiled by  
J. C. Bailey  
ORGDP Health Physics

November 17, 1977

UNION  
CARBIDE

OAK RIDGE GASEOUS DIFFUSION PLANT  
OAK RIDGE, TENNESSEE

prepared for the U.S. DEPARTMENT OF ENERGY under  
U.S. GOVERNMENT Contract W-7405 eng 26

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## HIGHLIGHT

X-RAY SHIELDING CALCULATIONS (Page 4). Calculations were performed by Health Physics to determine the amount of shielding which will be required to uprate the K-1401 X-Ray Facility for a new 420 kV - 10 mA constant-potential X-ray unit.

## CONTENTS

	<u>Page</u>
INTRODUCTION AND SUMMARY . . . . .	4
PROGRAM ACTIVITIES . . . . .	4
X-Ray Shielding Calculations . . . . .	4
CONTINUING SURVEY AND SURVEILLANCE PROGRAMS . . . . .	4
X-Ray Generator and Radiation Source Evaluation . . . . .	4
Area and Equipment Surveys . . . . .	4
Urinalysis Program . . . . .	5
Training and Education . . . . .	6
New Employee HP Orientation . . . . .	6
Other Training . . . . .	6

ORGDP HEALTH PHYSICS PROGRAM FOR OCTOBER 1977

## INTRODUCTION AND SUMMARY

This monthly report summarizes Health Physics (HP) activities at the Oak Ridge Gaseous Diffusion Plant (ORGDP). The HP goal is to ensure that exposures of persons to radioactive material or ionizing radiation are as low as is practicable, and below applicable radiation protection guide values. This is accomplished through evaluation of exposure levels and potentials, with appropriate recommendations to plant management.

Principal October activities included calculations to determine the amount of shielding required to uprate the K-1401 X-Ray Facility and continuation of HP survey activities.

## PROGRAM ACTIVITIES

## X-RAY SHIELDING CALCULATIONS

[Keywords: Radiation Protection]

Calculations were performed by HP to determine the amount of shielding which will be required to uprate the K-1401 X-Ray Facility for a new 420 kV - 10 mA constant-potential X-ray unit. Results of the calculations will be used by Engineering to develop appropriate design criteria.

## CONTINUING SURVEY AND SURVEILLANCE PROGRAMS

## X-RAY GENERATOR AND RADIATION SOURCE EVALUATION

[Keywords: X-Rays; Radiation Protection]

Inspection of eight isotopic radiation sources showed no evidence of leakage, and all were determined to be properly tagged and stored. One x-ray generator was inspected and was determined to be in compliance with HP safety procedures, and dose rates found in the vicinity of the machine were below applicable radiation protection standards.

## AREA AND EQUIPMENT SURVEYS

Routine and special-request surveys are summarized in Table 1.

Table 1  
CONTAMINATION SURVEYS

	<u>October</u>	<u>Year To Date</u>
Work areas	30	392
Lunchrooms	6	73
Pieces of decontaminated equipment	3,648	28,780
Miscellaneous items	960	15,091
Shipping cylinders and/or packages	185	2,321
Trailers and railcars handling uranium hexafluoride	54	756
Personnel checks	51	357
Spot air samples	23	164
Shift length air samples	685	8,598

#### URINALYSIS PROGRAM

Data on urinalysis samples are summarized in Table 2.

Table 2  
URINALYSIS SAMPLES

	<u>October</u>	<u>Year To Date</u>
Samples submitted for analysis	745	6,400
Analyses reported	670	6,225
Samples exceeding the plant action guide for uranium and/or alpha activity	8	106

The eight samples exceeding the plant action guide (PAG) for uranium and/or alpha activity were from the following people who were in the vicinity when uranium hexafluoride was inadvertently released to the atmosphere:

1. Technician - valve leak during a cylinder disconnecting operation.
2. Two operators and a supervisor - Rupture of an autoclave pressure transmitter flange gasket.

3. Maintenance mechanic - tie line block valve changeout in Building K-31.
4. Three operators - routine field decontamination work in Building K-1420.

Follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG limit, indicating no significant body retention of uranium.

#### TRAINING AND EDUCATION

##### New Employee HP Orientation

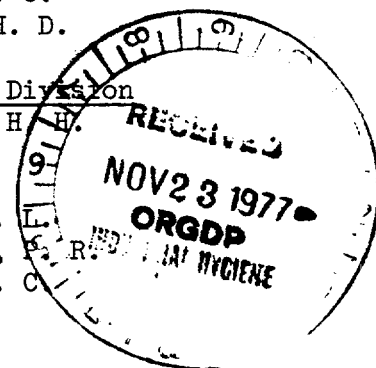
Thirty-six new employees attended one of three HP orientation sessions presented by members of the HP staff.

##### Other Training

A member of the HP staff presented two brief orientation sessions to the doctors and nurses of the ORGDP Medical Center in conjunction with a new alpha-beta-gamma survey instrument to be used to monitor patients suspected of having uranium and/or technetium contamination.

## DISTRIBUTION

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FOR NOVEMBER 1977

Compiled by  
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ORGDP Health Physics

December 19, 1977

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*David A. Hill* 5/17/95  
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Oak Ridge K-25 Site

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## HIGHLIGHTS

HEALTH PHYSICS ACTIVITIES (Page 4). Health Physics (HP) activities during November were directed toward the routine plant surveillance and HP training functions.

## CONTENTS

	<u>Page</u>
INTRODUCTION AND SUMMARY . . . . .	4
CONTINUING SURVEY AND SURVEILLANCE PROGRAMS . . . . .	4
X-Ray Generator and Radiation Source Evaluation . . . . .	4
Area and Equipment Surveys . . . . .	4
Urinalysis Program . . . . .	6
Training and Education . . . . .	7
New Employee HP Orientation . . . . .	7
Certification of Radiation Monitors . . . . .	7
Other Training . . . . .	7

## ORGDP HEALTH PHYSICS PROGRAM FOR NOVEMBER 1977

## INTRODUCTION AND SUMMARY

This monthly report summarizes Health Physics (HP) activities at the Oak Ridge Gaseous Diffusion Plant (ORGDP). The HP goal is to ensure that exposures of persons to radioactive material or ionizing radiation are as low as is practicable, and below applicable radiation protection guide values. This is accomplished through evaluation of exposure levels and potentials, with appropriate recommendations to plant management.

Principal November activities included continuation of HP training for plant employees and survey activities.

## CONTINUING SURVEY AND SURVEILLANCE PROGRAMS

## X-RAY GENERATOR AND RADIATION SOURCE EVALUATION

[Keywords: X-Rays; Radiation Protection]

Routine inspection of six isotopic sources showed no evidence of leakage, and all were determined to be properly tagged and stored. In addition, one of three X-ray generators inspected was determined to be in compliance with HP safety procedures, and dose rates found in the vicinity of the machine were below applicable radiation protection standards. Two of the machines, a portable Norelco radiographic unit P.N. 252510 and the X-ray unit used for film badge identification, were inoperative.

The status of the X-ray machines and radiation sources relative to the uprating program is shown in Table 1.

## AREA AND EQUIPMENT SURVEYS

Routine and special-request surveys are summarized in Table 2.

Table 1

## STATUS OF X-RAY EQUIPMENT AND ISOTOPIC SOURCES

<u>Unit</u>	<u>Property No.</u>	<u>Use</u>	<u>Responsible Department</u>	<u>Percent of Bills of Material Completed</u>	<u>Percent Completion in Shop</u>	<u>Percent of Field Completion</u>
Westinghouse	253862	Medical	1090	100	100	0
Dick	232785	Film Badge	1094	100	100	100
Phillips	244182	Diffraction	1323	100	100	0
Siemens	259819	Diffraction	1323	100	100	0
Norelco	250073	Diffraction	1323	100	100	100
Picker	193615	Diffraction	1323		Stored - Not in Use	
Seifert	245328	Radiographic	1312	100	100	100
Phillips	268867	Radiographic	1312	100	100	100
Norelco	252510	Radiographic	1312	100	100	100
Phillips	270272	Radiographic	1312	100	100	100
Picker Andrex	None	Radiographic	1312	(a)	(a)	(a)
Picker Andrex	None	Radiographic	1312	(a)	(a)	(a)
Picker	255837	Fluoroscopic	1312	100	100	100
Iridium-192 Source	--	Radiographic	1312	None	100	100
Cobalt-60 Source	--	Radiographic	1312	None	100	100
Cobalt-60 Source	--	Film Calibration	1317	99	100	0
Cobalt-60 Source	--	Emergency	1317		Stored - Not in Use	

(a) Modified earlier at the Y-12 Plant to meet engineering specifications.

Table 2  
CONTAMINATION SURVEYS

	<u>November</u>	<u>Year To Date</u>
Work areas	41	433
Lunchrooms	8	81
Pieces of decontaminated equipment	2,924	31,704
Miscellaneous items	654	15,745
Shipping cylinders and/or packages	174	2,495
Trailers and railcars handling uranium hexafluoride	55	811
Personnel checks	12	369
Spot air samples	22	186
Shift length air samples	705	9,303

#### URINALYSIS PROGRAM

Data on urinalysis samples are summarized in Table 3.

Table 3  
URINALYSIS SAMPLES

	<u>November</u>	<u>Year To Date</u>
Samples submitted for analysis	716	7,116
Samples exceeding the plant action guide for uranium and/or alpha activity	11	117

The eleven samples exceeding the plant action guide (PAG) for uranium and/or alpha activity were from the following people who were in the vicinity when uranium hexafluoride ( $UF_6$ ) was inadvertently released to the atmosphere:

1. Three operators - Defective cylinder valve in Building K-1420.

2. An operator and supervisor - Seal change in tails withdrawal facility in Building K-1131.
3. Three samples from two operators - Defective air-operated control valve in Building K-1131.
4. Two maintenance mechanics - Cascade expansion joint in Building K-33.
5. An operator - Burping process in UF<sub>6</sub> transfer area in Building K-1210.

Follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG limit, indicating no significant body retention of uranium.

#### TRAINING AND EDUCATION

##### New Employee HP Orientation

Twenty-seven new employees attended one HP orientation session presented by a member of the HP staff.

##### Certification of Radiation Monitors

Twenty-six employees, twenty-two from the Equipment Test and Inspection Department of the Technical Services Division and four from the Separation Systems Division attended one of three training courses presented by HP for certification as Radiation Monitors. All of the candidates have completed the certification requirements. ORGDP Health Physics normally provides radiation monitoring services upon request, and this function is supplemented by qualified plant personnel who handle infrequent situations where immediate limited monitoring is required off shift. Certification training of the personnel of the Equipment Test and Inspection Department, however, was undertaken to assure a high level of competence in their routine use of radiation instruments as needed in connection with their use of radiographic radiation sources and X-ray equipment throughout the plant.

##### Other Training

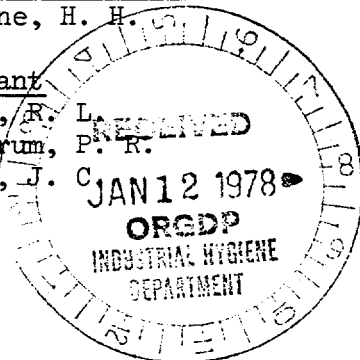
Seventy employees of the K-1420 Decontamination Facility and thirteen employees from the Development Maintenance Department participated in seven one-hour lectures on HP principles presented by a member of the HP staff.

A member of the HP staff presented a one-hour meeting concerning uranium handling at ORGDP and other HP emergency topics to nineteen employees of the D-shift emergency squad. Three more similar meetings are scheduled for next month to cover other emergency squad employees.



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FOR DECEMBER 1977

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ORGDP Health Physics

February 2, 1978

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This document has been approved for release  
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*David B. Giddens* 5/17/95  
Technical Information Officer  
Oak Ridge K-25 Site

Date

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## HIGHLIGHTS

PROCEDURES (Page 4). Standard Practice Procedure SPP-B-340, *Scrap Metal Control Program for Unclassified Material*, has been revised and is ready to be issued.

TRAINING AND EDUCATION (Page 6). Twenty-nine training sessions were presented by members of the Health Physics staff to 1,835 employees of the Fabrication and Maintenance Division on the subject of Health Physics principles as related to Oak Ridge Gaseous Diffusion Plant processes.

## CONTENTS

	<u>Page</u>
INTRODUCTION AND SUMMARY . . . . .	4
PROGRAM ACTIVITIES . . . . .	4
Procedures . . . . .	4
<i>In Vivo</i> Counting . . . . .	4
CONTINUING SURVEY AND SURVEILLANCE PROGRAMS . . . . .	4
X-Ray Generator and Radiation Source Evaluation . . . . .	4
Area and Equipment Surveys . . . . .	5
Urinalysis Program . . . . .	5
Training and Education . . . . .	6
New Employee HP Orientation . . . . .	6
Other Training . . . . .	6

ORGDP HEALTH PHYSICS PROGRAM FOR DECEMBER 1977

## INTRODUCTION AND SUMMARY

This monthly report summarizes Health Physics (HP) activities at the Oak Ridge Gaseous Diffusion Plant (ORGDP). The HP goal is to ensure that exposures of persons to radioactive material or ionizing radiation are as low as is practicable, and below applicable radiation protection guide values. This is accomplished through evaluation of exposure levels and potentials, with appropriate recommendations to plant management.

Major efforts were directed toward (1) resolving comments on Standard Practice Procedure SPP-B-340, *Scrap Metal Control Program for Unclassified Material*, and (2) providing refresher training for all employees of the Fabrication and Maintenance Division.

## PROGRAM ACTIVITIES

## PROCEDURES

Considerable effort was expended in revising SPP-B-340, *Scrap Metal Control Program for Unclassified Material*, to appropriately meet all of the Plant's needs. This procedure is now ready for issuance.

## IN VIVO COUNTING

The Y-12 Mobile *In Vivo* Radiation Monitoring Laboratory will be stationed at K-25 for approximately 2 weeks in January 1978. This counter is used to detect insoluble compounds of uranium and other radioisotopes that may be retained in the lungs by employees. It is estimated that from 200 to 250 ORGDP employees will be monitored using this technique. In the past, employees were sent to the Y-12 stationary *in vivo* counter for monitoring, a procedure which is costly in terms of employee time away from the job. Having the mobile counter at K-25 will permit monitoring of employees on a wider scale than has been done before.

## CONTINUING SURVEY AND SURVEILLANCE PROGRAMS

## X-RAY GENERATOR AND RADIATION SOURCE EVALUATION

[Keywords: X-Rays; Radiation Protection]

Routine inspection of two isotopic sources showed no evidence of leakage, and both were determined to be properly tagged and stored. In addition, two X-ray generators inspected were determined to be in compliance with HP safety procedures, and dose rates found in the vicinity of the machines were below applicable radiation protection standards.

## AREA AND EQUIPMENT SURVEYS

Routine and special-request surveys are summarized in Table 1.

Table 1

## CONTAMINATION SURVEYS

	<u>December</u>	<u>Year To Date</u>
Work areas	61	494
Lunchrooms	9	90
Pieces of decontaminated equipment	4,380	36,084
Miscellaneous items	2,233	17,978
Shipping cylinders and/or packages	302	2,797
Trailers and railcars handling uranium hexafluoride	101	912
Personnel checks	66	435
Spot air samples	20	206
Shift length air samples	589	9,892

## URINALYSIS PROGRAM

Data on urinalysis samples are summarized in Table 2.

Table 2

## URINALYSIS SAMPLES

	<u>December</u>	<u>Year To Date</u>
Samples submitted for analysis	496	7,612
Samples exceeding the plant action guide for uranium and/or alpha activity	9	126

The 9 samples exceeding the plant action guide (PAG) for uranium and/or alpha activity were from the following people who were in the vicinity when uranium hexafluoride ( $UF_6$ ) was inadvertently released to the atmosphere:

1. Four samples from 3 welders - Cascade expansion joint in K-33.
2. Three cascade operators - Autoclave pigtail in Building K-1131.
3. Chemical operator - Field decontamination of K-33 piping.
4. Cascade electrician - Undetermined origin.

Follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG limit for a single sample of 0.067 mg/liter for uranium and 10 d/m/100 ml for alpha activity, indicating no significant body retention of uranium.

#### TRAINING AND EDUCATION

##### New Employee HP Orientation

Thirty-seven new employees attended one HP orientation session presented by a member of the HP staff.

##### Other Training

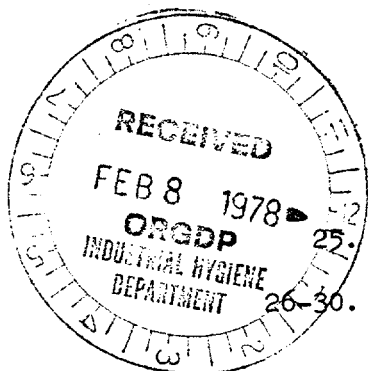
Twenty-nine training sessions were presented by members of the HP staff to 1,835 employees of the Fabrication and Maintenance Division on the subject of Health Physics principles as related to ORGDP processes. This effort constituted a major part of the Health Physics Education and Training Program for the year.

A member of the HP staff presented three 1-hr meetings concerning uranium handling at ORGDP and other HP emergency topics to 61 employees of the emergency squad.



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ORGDP HEALTH PHYSICS PROGRAM  
FOR JANUARY 1978

Compiled by  
J. C. Bailey  
ORGDP Health Physics

February 24, 1978

UNION  
CARBIDE

OAK RIDGE GASEOUS DIFFUSION PLANT  
OAK RIDGE, TENNESSEE

prepared for the U.S. DEPARTMENT OF ENERGY under  
U.S. GOVERNMENT Contract W-7405 eng 26

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to the public by:

Technical Information Officer  
Oak Ridge K-25 Site

Date

5/17/95

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## HIGHLIGHT

*IN VIVO* COUNTING (Page 4). The *In Vivo* Radiation Monitoring Laboratory monitored 220 employees for the possible detection of neptunium, technetium, and uranium. None of the employees had any significant evidence of body retention of insoluble compounds of these elements.

## CONTENTS

	<u>Page</u>
INTRODUCTION AND SUMMARY . . . . .	4
PROGRAM ACTIVITIES . . . . .	4
<i>In Vivo</i> Counting . . . . .	4
Attendance at Meetings . . . . .	4
CONTINUING SURVEY AND SURVEILLANCE PROGRAMS . . . . .	4
X-Ray Generator and Radiation Source Evaluation . . . . .	4
Area and Equipment Surveys . . . . .	5
Urinalysis Program . . . . .	5
Training and Education . . . . .	6

ORGDP HEALTH PHYSICS PROGRAM FOR JANUARY 1978

## INTRODUCTION AND SUMMARY

This monthly report summarizes Health Physics (HP) activities at the Oak Ridge Gaseous Diffusion Plant (ORGDP). The HP goal is to ensure that exposures of persons to radioactive material or ionizing radiation are as low as is practicable, and below applicable radiation protection guide values. This is accomplished through evaluation of exposure levels and potentials, with appropriate recommendations to plant management.

Principal January activities included whole body counting of a large number of employees at K-25 and continuation of HP survey activities.

## PROGRAM ACTIVITIES

*IN VIVO* COUNTING

The Y-12 Mobile *In Vivo* Radiation Monitoring Laboratory was stationed at the K-1420 Decontamination Facility for 14 working days. To optimize the use of the counter while at ORGDP, counting was performed during two shifts. Two hundred twenty employees from 14 different departments were monitored for the detection of insoluble compounds of uranium, neptunium, and technetium. It was determined from the results that none of the employees had any significant evidence of body retention of neptunium and technetium and none of the counts showed as much as half of the maximum permissible lung burden for uranium.

## ATTENDANCE AT MEETINGS

A member of the HP staff attended a 1-day seminar entitled *Packaging and Transportation of Radioactive Materials* held in Atlanta, Georgia. The seminar agenda included topics such as types of regulations and shipments, applicability of these regulations, marking and labeling of shipments, and shipping paper preparation.

## CONTINUING SURVEY AND SURVEILLANCE PROGRAMS

## X-RAY GENERATOR AND RADIATION SOURCE EVALUATION

[Keywords: X-Rays; Radiation Protection]

Routine inspection of 11 isotopic sources showed no evidence of leakage, and all were determined to be properly tagged and stored. In addition, two X-ray generators were inspected and both were determined to be in compliance with HP safety procedures. Also, dose rates found in the vicinity of the machine were below applicable radiation protection standards.

## AREA AND EQUIPMENT SURVEYS

Routine and special-request surveys are summarized in Table 1.

Table 1

## CONTAMINATION SURVEYS

---

Work Areas	43
Lunchrooms	7
Pieces of Decontaminated Equipment	3,402
Miscellaneous Items	2,196
Shipping Cylinders and/or Packages	151
Trailers and Railcars Handling UF <sub>6</sub>	34
Personnel Checks	11
Spot Air Samples	17
Shift Length Air Samples	786

---

## URINALYSIS PROGRAM

Data on urinalysis samples are summarized in Table 2.

Table 2

## URINANALYSIS SAMPLES

---

Samples Submitted for Analysis	805
Samples Exceeding the Plant Action Guide for Uranium and/or Alpha Activity	12

---

The 12 samples exceeding the plant action guide (PAG) for uranium and/or alpha activity were from the following people who were in the vicinity when uranium hexafluoride (UF<sub>6</sub>) was inadvertently released to the atmosphere:

1. Three maintenance mechanics, two welders, and one operator - replacing 8-in. valve in Building K-29.
2. Two operators - pigtail disconnection in Building K-1131.
3. Maintenance mechanic - balanced ell change in Building K-33.
4. Three chemical operators - changing of  $UF_6$  traps and routine decontamination in Building K-1420.

Follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG limit for a single sample of 0.067 mg/liter for uranium and 10/m/100 ml for alpha activity, indicating no significant body retention of uranium.

#### TRAINING AND EDUCATION

The number of employees attending training and orientation meetings presented by members of the HP staff is summarized in Table 3.

Table 3

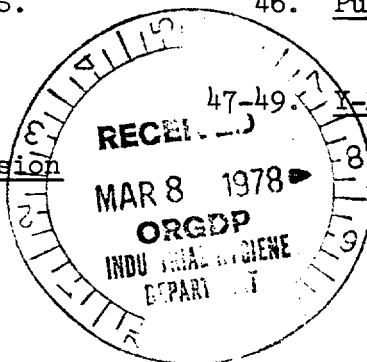
#### SUMMARY OF TRAINING AND ORIENTATION MEETINGS

<u>Training Program</u>	<u>No. of Meetings</u>	<u>No. of Participants</u>
New Employee HP Orientation	1	17
HP Emergency Group	1	3
Other HP Orientation Meetings	5	178



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ORGDP HEALTH PHYSICS PROGRAM  
FOR FEBRUARY 1978

Compiled by  
J. C. Bailey  
ORGDP Health Physics

April 21, 1978

UNION  
CARBIDE

OAK RIDGE GASEOUS DIFFUSION PLANT  
OAK RIDGE, TENNESSEE

prepared for the U.S. DEPARTMENT OF ENERGY under  
U.S. GOVERNMENT Contract W-7405 eng 26

This document has been approved for release  
to the public by:

*David A. Gilliland*  
Technical Information Officer  
Oak Ridge K-25 Site

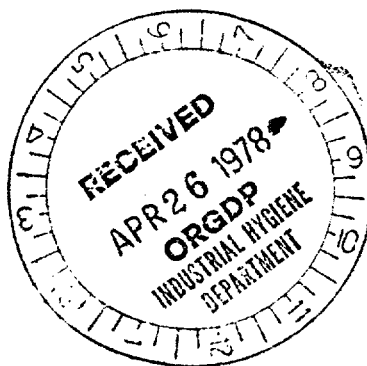
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## HIGHLIGHT

HEALTH PHYSICS ACTIVITIES (Page 4). Health Physics (HP) activities during February were directed primarily toward the continuing of plant radiation surveillance programs and the evaluation of trace contaminants in the diffusion cascade.

## CONTENTS

	<u>Page</u>
INTRODUCTION AND SUMMARY . . . . .	4
PROGRAM ACTIVITIES . . . . .	4
Trace Elements in Diffusion Plants . . . . .	4
Uranium Hexafluoride Release . . . . .	4
CONTINUING SURVEY AND SURVEILLANCE PROGRAMS . . . . .	5
X-Ray Generator and Radiation Source Evaluation . . . . .	5
Area and Equipment Surveys . . . . .	6
Urinalysis Program . . . . .	6
Training and Education . . . . .	7
New Employee HP Orientation . . . . .	7

## ORGDP HEALTH PHYSICS PROGRAM FOR FEBRUARY 1978

## INTRODUCTION AND SUMMARY

This monthly report summarizes Health Physics (HP) activities at the Oak Ridge Gaseous Diffusion Plant (ORGDP). The HP goal is to ensure that exposures of persons to radioactive material or ionizing radiation are as low as is practicable, and below applicable radiation protection guide values. This is accomplished through evaluation of exposure levels and potentials, with appropriate recommendations to plant management.

Principal activities included specific job studies and analytical development in relation to the continuing trace element evaluation program and the routine plant radiation surveillance programs.

## PROGRAM ACTIVITIES

## TRACE ELEMENTS IN DIFFUSION PLANTS

Detailed job evaluations to define levels of trace elements encountered in various operations continued to be performed. Efforts of the Analytical Services Department to develop analytical techniques offering improved sensitivity and markedly lower analytical time also continued.

## URANIUM HEXAFLUORIDE RELEASE

[Keyword: Uranium--Release]

On February 28, 1978, a small uranium hexafluoride ( $UF_6$ ) release occurred in the K-31 Plant when  $UF_6$  passed through a defective seal on a cell which had been purged and shut down. It could not be accurately determined where the release originated, but was speculated that it was from an unpurged deposit in the compressor or the seal cavity. Although the release was quite small--estimated at about 5 g  $UF_6$ , the  $UF_6$  was drawn into the cell motor exhaust duct and recycled onto the operating floor. Twenty-eight Carbide employees and 26 construction employees on the operating floor and cell floor, who were working in the general area of the release, reported to the Medical Center for examination and submitted urine samples for analysis.

Thirteen samples from 12 Carbide employees and 8 from construction employees showed concentrations of uranium exceeding the plant action guide (PAG). However, follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG of 0.067 mg/liter for uranium and 10 dpm/100 ml for alpha.

A special partial evacuation signal, consisting of 10 short blasts on the building signal horns, has been established in the cascade areas to expedite the evacuation of nonessential personnel and to minimize exposures to airborne radioactivity.

#### CONTINUING SURVEY AND SURVEILLANCE PROGRAMS

##### X-RAY GENERATOR AND RADIATION SOURCE EVALUATION

[Keywords: X-Rays; Radiation Protection]

Routine inspection of four isotopic sources showed no evidence of leakage, and all were determined to be properly tagged and stored. In addition, 10 X-ray machines were inspected as to location and working conditions. At the time of the inspection, three were nonoperational for reasons not affecting radiation safety, and one was out of service for replacement. On one unit, the voltage-sensing device of the radiation warning system was not functioning and, upon its failure, the operator had suspended operations until repairs could be effected on the following day. The inspection results are presented in detail in Table 1.

Table 1

##### X-RAY MACHINE INSPECTION RESULTS

Unit	Property Number	Use	Location	Condition
Philips	244182	X-Ray Diffraction	K-1006	Transformer broken
Norelco	250073	X-Ray Diffraction	K-1004-B	To be salvaged and replaced by a newer model
Dick	232785	Film Badge	K-1020	VSD/System on lights not working properly
Philips	268867	Radiography	K-1401	Storage
Norelco	252510	Radiography	K-1401	Hydraulic jack seal broken
Philips	270272	Radiography	K-1401	Storage
Picker Andrex	--	Radiography	K-1401	Good working condition
Picker Andrex	--	Radiography	K-1401	Good working condition
Picker Minishot	255837	Fluoroscopic	K-1401	Oil bellows broken
Picker	--	Radiography	K-1401	Unit on loan from X-10. Good working condition

## AREA AND EQUIPMENT SURVEYS

Routine and special-request surveys are summarized in Table 2.

Table 2

## CONTAMINATION SURVEYS

	<u>February</u>	<u>Year To Date</u>
Work areas	36	79
Lunchrooms	8	15
Pieces of decontaminated equipment	3872	7274
Miscellaneous items	1788	3984
Shipping cylinders and/or packages	114	265
Trailers and railcars handling UF <sub>6</sub>	58	92
Personnel checks	22	33
Spot air samples	2	19
Shift-length air samples	657	1443

## URINALYSIS PROGRAM

Data on urinalysis samples are summarized in Table 3.

Table 3

## URINALYSIS SAMPLES

	<u>February</u>	<u>Year To Date</u>
Samples submitted for analysis	666	1471
Samples exceeding the PAG for uranium and/or alpha activity	28	40

The 28 samples exceeding the PAG for uranium and/or alpha activity were from the following people who were in the vicinity when UF<sub>6</sub> was inadvertently released to the atmosphere:



1. Operator - uranium recovery operation in Building K-1420.
2. Four operators -  $\text{UF}_6$  release during pigtail decontamination in Building K-1420.
3. Maintenance mechanic - expansion joint changeout in Building K-31.
4. Carpenter - inadvertently walked into a room where a small  $\text{UF}_6$  release was occurring in the K-29 control room.
5. Thirteen samples from 12 Carbide employees and 8 samples from contractor employees -  $\text{UF}_6$  release through a defective seal on a down cell in Building K-31, possibly from a small deposit in the compressor or the seal (see Page 4).

Follow-up samples in each case showed that the excretion rate had decreased to a level well below the PAG limit for a single sample of 0.067 mg/liter for uranium and 10 dpm/100 ml for alpha activity, indicating no significant body retention of uranium.

#### TRAINING AND EDUCATION

##### New Employee HP Orientation

Forty-five new employees attended two HP orientation sessions presented by a member of the HP staff.

## DISTRIBUTION

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